Supplementary Information

Natural occurrence of pure nano-polycrystalline diamond from impact crater

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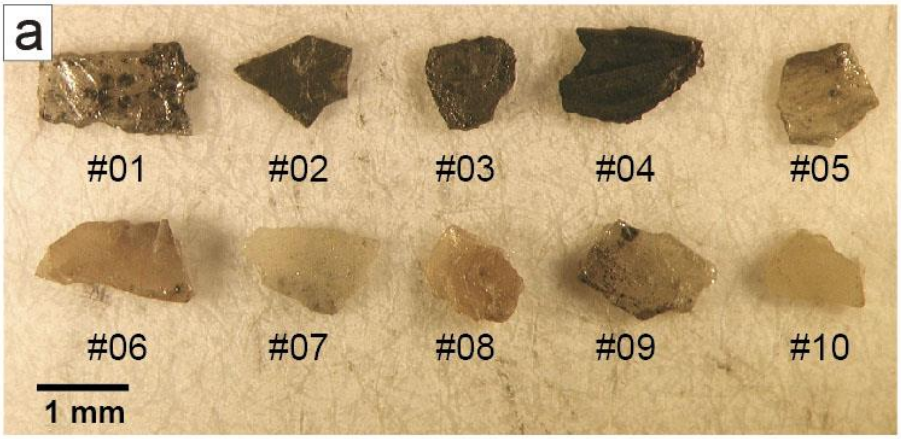
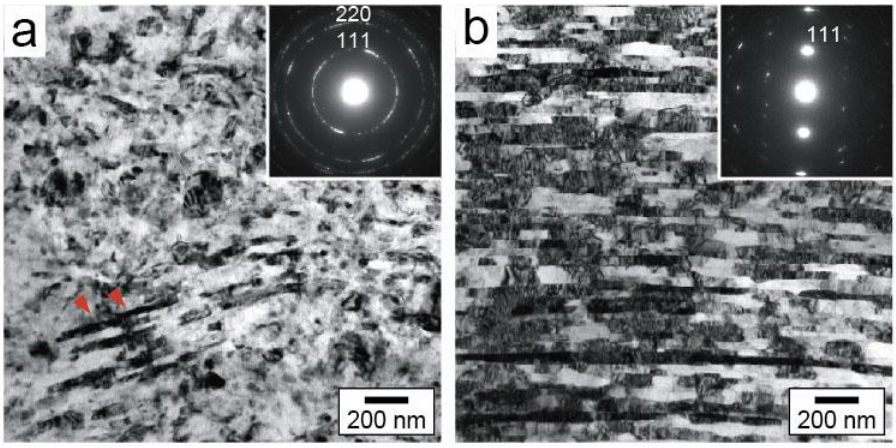
Supplementary Figures S1 to S2



Supplementary Figure S1 | Optical microscopic images of 10 impact diamonds from the Popigai crater. Many of them are transparent and show pale yellowish to brownish yellow colors except for #02, #03 and #04 which are fully or partly opaque.



Supplementary Figure S2 | TEM images of nanocrystalline diamonds synthesized by direct conversion of graphite. (a) Typical nano-polycrystalline diamond obtained from polycrystalline graphite, which partially contains lamellar crystals (arrows)[27]. (b) Nano-layered diamond synthesized from highly oriented pyrolitic graphite, showing distinct [111] preferred orientation along the stacking direction [29].